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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,980	12/03/2003	Do-Hwan Lim	8836-210 (IB12211-US)	5117
22150 7590 11/14/2007 F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			EXAMINER SINGH, RAMNANDAN P	
			ART UNIT 2614	PAPER NUMBER
			MAIL DATE 11/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto;"></div> <p style="text-align: center;"><b>Office Action Summary</b></p>	Application No.	Applicant(s)	
	10/726,980	LIM, DO-HWAN	
	Examiner	Art Unit	
	Ramnandan Singh	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 200 & Aug 22, 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 6-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>Mar 01, 2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-5, drawn to an echo canceller for an asymmetric communication system, classified in class 370, subclass 286, shown in Figures 1A and 1B.

II. Claims 6-13, drawn to an asymmetric communication system having an echo canceller, classified in class 370, subclass 290; class 708, subclass 319, subclass 323, shown in Figures 8A and 8B.

III. Claims 14-17, drawn to a method for downloading a filter coefficient of an echo canceller, classified in class 370, subclass 292; class 708, subclass 301, subclass 319, shown in Figures 7A and 7B.

2. Applicant's response filed on Aug 22, 2007 confirmed the election of Group I consisting of claims 1-5. As a result, claims 6-17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Hence, this restriction is made FINAL.

***Priority***

3. Receipt is acknowledged of foreign priority papers submitted in Korean, under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Objections***

4. Claims 3 and 5 are objected to because of the following informalities:

Claim 3 recites the limitation "in **an** remote terminal (RT)" in line 2.

This is in error. Replace the word "an" with the word "a".

Claim 5 recites "The asymmetric communication system of claim 1" in line. This is in error. Replace the term "The asymmetric communication system of claim 1" with the term "The echo canceller system of claim 1".

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Agrawal et al [US 4,268,227].

Regarding claim 1, Agrawal et al disclose an echo canceller shown in Fig. 2, for an asymmetric communication system, comprising:

a delay line block for delaying an echo input signal,  $X_n$ , for a predetermined interval to generate a delay signal [Fig. 7];

a filter coefficient table block (180) for sequentially shifting filter coefficients stored in a shift register (174), and for outputting a filter coefficient [Fig. 8]; and

a multiplication (190) and accumulation (188) block for multiplying and adding the delay signal of the delay line block by the filter coefficient output by the filter coefficient table block to generate an echo-cancelled echo output signal,  $Z_n$  [Figs. 2, 7-9; col. 5, line 60 to 7, line 9; col. 8, line 33, col. 9, line 64]. Examiner considers "an echo canceller for an

asymmetric communication system" as an intended use of the echo canceller.

Regarding claim 2, Agrawal et al further teach the echo canceller, wherein the echo canceller (28) is a finite impulse response (FIR) filter that calculates the correlativity between the echo input signal,  $X_n$ , and an echo output signal,  $W_n$ , to generate the filter coefficients [Figs. 2, 7-9; col. 4, lines 5-22].

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal et al as applied to claim 1 above, and further in view of Idle [US 5,841,856].

Regarding claim 3, Agrawal et al do not teach expressly a line echo canceller and an acoustic echo canceller; wherein the shift register is used in a central office (CO) mode to cancel a line echo and in an remote terminal (RT) mode to cancel acoustic echoes of a communication system [Figs. 2, 7-9].

Idle teaches a line echo canceller and an acoustic echo canceller for a hands-free telephone set [Figs. 1-3; col. 2, line 32 to col. 3, line 53].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Idle with Agrawal et al in order to provide a full-duplex communications.

9. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal et al as applied to claim 1 above.

Regarding claim 4, although Agrawal et al further teach the echo canceller, wherein the filter coefficient output by the filter coefficient table

block has a shift rate of  $1/T$  [col. 8, line 33 to col. 9, line 44], Agrawal et al do not teach expressly a shift rate 1:4.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the value of shift rate 1:4 as a matter of design choice.

Regarding claim 5, Agrawal et al further teach the echo canceller, wherein the delay line block [Fig: 7] divides a line for inputting the echo input signal into eight delay lines to delay the echo input signal, where index "m" is an integer that may assume any value including 9 according to a design choice. As a result, this will yield eight delay lines to delay an echo input signal.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) Greiss et al [Us 7,157,883 B2] a filter that includes an adjustment-accumulator coupled to the receiver [Whole document];

(ii) Ide [US 5,841,856] teaches a hands-free telephone set [Figs. 1-3; Abstract]; and

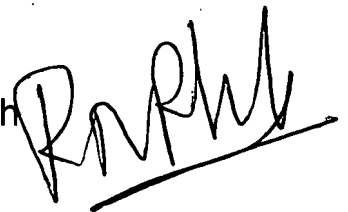
(iii) Linz et al [US 5,621,675] teach a digital decimation and compensation filter system [Figs. 1-58; Abstract].

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh  
Primary Examiner  
Art Unit 2614

A handwritten signature in black ink, appearing to read 'RnRhs', is written over a horizontal line.